Name: Rachel Fischhoff Grade: 5 Date:

Perimeter Stays the Same

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| Lesson Sources: Schuster, pg. 328 |
| Lesson Objectives: Students will explore the relationship between area and perimeter by creating and examining shapes with constant perimeter measures and various areas. |
| Standards: 5G 4. Classify two-dimensional figures in a hierarchy based on properties. |
| Multicultural Content: |
| Materials and Advanced Preparation: grid paper, chart for least and greatest area, scissors at the end |
| Prior Knowledge and Skills Needed: Understanding/review of area/perimeter |
| Key/New Vocabulary:  area: the measure of the inside region of a figure  perimeter: the measure around a figure |

Lesson Procedure: Part One

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| **Time** | **Teacher Actions** | **Student Learning Activities** | **Form of Assessment** |
| 1 min | **1. Connection**   * Mathematicians, on Monday we thought about the relationship between a figure’s area and it’s perimeter by looking at the varied perimeters of shapes with the exact same area. * *Let’s look at what we saw on Monday—we noticed some patterns in the kinds of figures that had greater and lesser perimeters. Which shapes are long and thin? Which shapes are more broad and spread out?* * Today, we will be thinking about this same relationship in a different way—we will be looking at figures with a constant *perimeter*, but varied *areas.* * *As we are working today, I want to concentrate on what patterns we notice today, what generalizations we can make.* | Situating today’s lesson in past learnings | Active listening |
| 7 min max | **2. The Teaching (The Giving of Information):**   * *Today you will be creating shapes with the same perimeter—30 units. That means the measure of the area around the figure is 30 units.* * Watch while I create a shape on my grid paper with a perimeter of 30 units. * Notice how I count as I’m going along—this helps me make sure I’m keeping track of the perimeter as I draw, instead of saving the counting for the end. * Do you agree that I have drawn a figure with a perimeter of 30 units? * Now I’ll find the area… | * Watching the model | * Active listening |
| 5 min | **3. Have a go**   * *Now it’s your turn. Try it out. On your own paper, draw a figure of 30 units on your grid paper.* * *Share out some ideas. Notice differences—are they rectangles? Are they irregular?* |  |  |
| 1 | **4. Link**   * Today you will work independently to find figures with a constant perimeter—30 units—and varied areas. How many do you think we will find? | **(Workshop Time)**   * Drawing figures on grid paper * Calculating area |  |
| 1 | **5. Mid-workshop interuption**   * Mathematicians, it is time to come together with your table group. * Which figure has the greatest area? Which figure has the least area? * Decide as a group and cut these out. Take them to the rug and tape them to the appropriate section on our chart! |  |  |
| 6 | **6. Closing (at the share)**   * What do we notice? Can we generalize? * Do we see that skinny shapes have lesser areas, fatter shapes have greater areas * Real world application?! | * Noticing * Whole class discussion | * Checking products for accuracy * Guiding the conversation toward big picture ideas about area and perimeter |

**Reflections:**

How did the lesson plan work? What was effective? What did you learn? What would you change for tomorrow or the next time you will use this plan?